

Document details

< Back to results | 1 of 1

Export Download Print E-mail Save to PDF Add to List More...

Full Text View at Publisher

Indonesian Journal of Electrical Engineering and Computer Science  
Volume 12, Issue 2, November 2018, Pages 542-547

Brain developmental disorders’ modelling based on preschoolers neuro-physiological profiling (Article)

Wahab, A.<sup>a</sup>, Kamaruddin, N.<sup>b</sup> E-mail icon Person icon

<sup>a</sup>Kulliyah of Information and Communication Technology, International Islamic University Malaysia, Kuala Lumpur, Malaysia  
<sup>b</sup>Advanced Analytics Engineering Center, Faculty of Computer and Mathematical Sciences, Universiti Teknologi MARA, Shah Alam, Selangor, Malaysia

Abstract

View references (20)

Frequently misunderstood by their teachers as being low performers, children with learning disabilities (LDs) such as dyslexia, ADHD, and Asperger’s Syndrome develop low self-confidence and poor self-esteem that may lead to the risk of developing psychological and emotional problems. On contrary, research has shown that a substantial number of these children are capable of learning, and hence, are high-functioning. Therefore, there is a need to provide for the early detection of LDs and instruction that focuses on their needs based on their profiles. Profiling is normally done through observations on the psychological manifestations of LDs by parents and teachers as third-party observers. The first party experience, which is reflected through brain manifestations, is often overlooked. Hence the aim of this paper is to present an alternative solution to profile young children with LDs using electroencephalogram (EEG) that capture brain signals to measure brain functionalities and correlate them with the different LDs. Studies on neurophysiological signals and their relationship to LDs are used to develop Computational Neuro-Physiological (CN-P) model to be an alternative in quantifying the children brain activation function related to learning experience. It is envisaged that such model can profile children with learning disabilities to provide effective intervention in timely manner which can help teachers to provide differentiated instruction for children with LDs. This is in line with the thrust of the Education National Key Result Area (NKRA), the Malaysia Education Blueprint 2013-2025, and the Special Education Regulations 2013. © 2018 Institute of Advanced Engineering and Science. All rights reserved.

Author keywords

Electroencephalogram Learning disabilities Neuro-physiological profiling Preschoolers

Funding details

Funding number	Funding sponsor	Acronym	Funding opportunities
	International Islamic University Malaysia	IIUM	
	International Islamic University Malaysia	IIUM	
	Universiti Teknologi MARA	UiTM	
	Ministry of Higher Education, Malaysia	MOHE	
TRGS16-04-02-002	Ministry of Higher Education, Malaysia	MOHE	

Funding text

Metrics ⓘ

0 Citations in Scopus  
0 Field-Weighted Citation Impact



PlumX Metrics  
Usage, Captures, Mentions, Social Media and Citations beyond Scopus.

Cited by 0 documents

Inform me when this document is cited in Scopus:

Set citation alert >  
Set citation feed >

Related documents

Feature extraction of EEG signal using wavelet transform for autism classification  
Cheong, L.C. , Sudirman, R. , Hussin, S.S.  
(2015) *ARPN Journal of Engineering and Applied Sciences*

Neurobiology, Pharmacology, and Emerging Treatment  
Adler, L.A.  
(2008) *CNS Spectrums*

Supervised and dynamic neuro-fuzzy systems to classify physiological responses in robot-assisted neurorehabilitation  
Lledó, L.D. , Badesa, F.J. , Almonacid, M.  
(2015) *PLoS ONE*

View all related documents based on references

Find more related documents in Scopus based on:

Authors > Keywords >

ISSN: 25024752

Source Type: Journal

Original language: English

DOI: 10.11591/ijeecs.v12.i2.pp542-547



Document Type: Article

Publisher: Institute of Advanced Engineering and Science

---

## References (20)

[View in search results format >](#)

☐ All   [Export](#)    [Print](#)    [E-mail](#)   [Save to PDF](#)   [Create bibliography](#)

- ☐ 1   Xavier Castellanos, F., Lee, P.P., Sharp, W., Jeffries, N.O., Greenstein, D.K., Clasen, L.S., Blumenthal, J.D., (...), Rapoport, J.L.  
**Developmental trajectories of brain volume abnormalities in children and adolescents with attention-deficit/hyperactivity disorder**  
(2002) *Journal of the American Medical Association*, 288 (14), pp. 1740-1748. Cited 1027 times.  
[View at Publisher](#)
- 

- ☐ 2   Lord, C.  
**Follow-Up of Two-Year-Olds Referred for Possible Autism**  
(1995) *Journal of Child Psychology and Psychiatry*, 36 (8), pp. 1365-1382. Cited 382 times.  
doi: 10.1111/j.1469-7610.1995.tb01669.x  
[View at Publisher](#)
- 

- ☐ 3   Snowling, M.J.  
**Early identification and interventions for dyslexia: A contemporary view**  
(2013) *Journal of Research in Special Educational Needs*, 13 (1), pp. 7-14. Cited 44 times.  
doi: 10.1111/j.1471-3802.2012.01262.x  
[View at Publisher](#)
- 

- ☐ 4   Colibazzi, T., Posner, J., Wang, Z., Gorman, D., Gerber, A., Yu, S., Zhu, H., (...), Peterson, B.S.  
**Neural Systems Subserving Valence and Arousal During the Experience of Induced Emotions**  
(2010) *Emotion*, 10 (3), pp. 377-389. Cited 114 times.  
doi: 10.1037/a0018484  
[View at Publisher](#)
- 

- ☐ 5   Gerdes, A.B.M., Wieser, M.J., Mühlberger, A., Weyers, P., Alpers, G.W., Plichta, M.M., Breuer, F., (...), Pauli, P.  
**Brain activations to emotional pictures are differentially associated with valence and arousal ratings**  
(2010) *Frontiers in Human Neuroscience*, 4. Cited 35 times.  
[http://www.frontiersin.org/human\\_neuroscience/10.3389/fnhum.2010.00175/abstract](http://www.frontiersin.org/human_neuroscience/10.3389/fnhum.2010.00175/abstract)  
doi: 10.3389/fnhum.2010.00175  
[View at Publisher](#)
-

- 6 Nielen, M.M.A., Heslenfeld, D.J., Heinen, K., Van Strien, J.W., Witter, M.P., Jonker, C., Veltman, D.J.  
Distinct brain systems underlie the processing of valence and arousal of affective pictures

(2009) *Brain and Cognition*, 71 (3), pp. 387-396. Cited 53 times.  
doi: 10.1016/j.bandc.2009.05.007

[View at Publisher](#)

---

- 7 Viinikainen, M., Jääskeläinen, I.P., Alexandrov, Y., Balk, M.H., Autti, T., Sams, M.  
Nonlinear relationship between emotional valence and brain activity: Evidence of separate negative and positive valence dimensions

(2010) *Human Brain Mapping*, 31 (7), pp. 1030-1040. Cited 55 times.  
<http://www3.interscience.wiley.com/cgi-bin/fulltext/123190720/PDFSTART>  
doi: 10.1002/hbm.20915

[View at Publisher](#)

---

- 8 Wager, T.D., Phan, K.L., Liberzon, I., Taylor, S.F.  
Valence, gender, and lateralization of functional brain anatomy in emotion: A meta-analysis of findings from neuroimaging

(2003) *NeuroImage*, 19 (3), pp. 513-531. Cited 681 times.  
<http://www.elsevier.com/inca/publications/store/6/2/2/9/2/5/index.htm>  
doi: 10.1016/S1053-8119(03)00078-8

[View at Publisher](#)

---

- 9 Wahab, A., Kamaruddin, N., Palaniappan, L.K., Li, M., Khosrowabadi, R.  
EEG signals for emotion recognition

(2010) *Journal of Computational Methods in Sciences and Engineering*, 10, pp. 1-11. Cited 7 times.  
doi: 10.3233/JCM-2010-0263

[View at Publisher](#)

---

- 10 Tao, J., Tan, T.  
Affective computing: A review

(2005) *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)*, 3784 LNCS, pp. 981-995. Cited 161 times.  
ISBN: 3540296212; 978-354029621-8  
doi: 10.1007/11573548\_125

[View at Publisher](#)

---

- 11 Yuen, C.T., San, W.S., Ho, J.-H., Rizon, M.  
Effectiveness of statistical features for human emotions classification using EEG biosensors

(2013) *Research Journal of Applied Sciences, Engineering and Technology*, 5 (21), pp. 5083-5089. Cited 5 times.  
<http://www.maxwellsci.com/print/rjaset/v5-5083-5089.pdf>

[View at Publisher](#)

---

- 12 Tseng, K.C., Lin, B.-S., Han, C.-M., Wang, P.-S.  
Emotion recognition of EEG underlying favourite music by support vector machine  
  
(2013) *ICOT 2013 - 1st International Conference on Orange Technologies*, art. no. 6521181, pp. 155-158. Cited 13 times.  
ISBN: 978-146735936-8  
doi: 10.1109/ICOT.2013.6521181  
  
[View at Publisher](#)
- 

- 13 Sudirman, R., Hussin, S.S.  
Sensory responses of autism via electroencephalography for Sensory Profile  
  
(2014) *Proceedings - 4th IEEE International Conference on Control System, Computing and Engineering, ICCSCE 2014*, art. no. 7072794, pp. 626-631. Cited 2 times.  
ISBN: 978-147995686-9  
doi: 10.1109/ICCSCE.2014.7072794  
  
[View at Publisher](#)
- 

- 14 Othman, M., Wahab, A.  
Affective face processing analysis in autism using electroencephalogram  
  
(2010) *Proceeding of the 3rd International Conference on Information and Communication Technology for the Moslem World: ICT Connecting Cultures, ICT4M 2010*, art. no. 5971907, pp. E23-E27. Cited 4 times.  
ISBN: 978-979194891-3  
doi: 10.1109/ICT4M.2010.5971907  
  
[View at Publisher](#)
- 

- 15 Nor, N.M., Wahab, A., Kamaruddin, N., Majid, H.  
Post accident analysis of driver affection  
  
(2011) *Proceedings of the International Symposium on Consumer Electronics, ISCE*, art. no. 5973832, pp. 278-283. Cited 7 times.  
ISBN: 978-161284843-3  
doi: 10.1109/ISCE.2011.5973832  
  
[View at Publisher](#)
- 

- 16 Abdul, W., Wen, T.G., Kamaruddin, N.  
Understanding Driver Behavior using Multi-dimensional CMAC  
(2007) *The 6Th International Conference on Information, Communications & Signal Processing*, pp. 1-5.
- 

- 17 Vaishnavi, V.K., Kuechler, W.  
(2015) *Design Science Research Methods and Patterns: Innovating Information and Communication Technology*. Cited 256 times.  
CRC Press
- 

- 18 Génova, G., Fuentes, J.M., Llorens, J., Hurtado, O., Moreno, V.  
A framework to measure and improve the quality of textual requirements  
  
(2013) *Requirements Engineering*, 18 (1), pp. 25-41. Cited 44 times.  
doi: 10.1007/s00766-011-0134-z  
  
[View at Publisher](#)
-

□ 19 Dragone, M., Jordan, H., Lillis, D., Collier, R.W.

### Separation of concerns in hybrid component and agent systems

(2011) *International Journal of Communication Networks and Distributed Systems*, 6 (2), pp. 176-201. Cited 2 times.

doi: 10.1504/IJCND.2011.038524

[View at Publisher](#)

□ 20 Abdul Muthalib, A., Abdelsatar, A., Salameh, M., Dalle, J.

### Making learning ubiquitous with mobile translator using optical character recognition (OCR)

(2011) *ICACIS 2011 - 2011 International Conference on Advanced Computer Science and Information Systems, Proceedings*, art. no. 6140752, pp. 233-236. Cited 4 times.

ISBN: 978-979142111-9

🔍 Kamaruddin, N.; Advanced Analytics Engineering Center, Faculty of Computer and Mathematical Sciences, Universiti Teknologi MARA, Shah Alam, Selangor, Malaysia; email:norhaslinda@tmsk.uitm.edu.my

© Copyright 2018 Elsevier B.V., All rights reserved.

< Back to results | 1 of 1

^ Top of page

#### About Scopus

What is Scopus  
Content coverage  
Scopus blog  
Scopus API  
Privacy matters

#### Language

日本語に切り替える  
切换到简体中文  
切换到繁體中文  
Русский язык

#### Customer Service

Help  
Contact us

ELSEVIER

[Terms and conditions](#) [Privacy policy](#)

Copyright © 2018 Elsevier B.V. All rights reserved. Scopus® is a registered trademark of Elsevier B.V.

Cookies are set by this site. To decline them or learn more, visit our [Cookies page](#).

RELX Group™